RDS-4 Tatiana (1953)

DATA AS OF 2025 (standard replenishment)
RDS-4 "Tatiana" / "T"
RDS-4M
★★★★

Tactical atomic bomb with an implosion-type charge with a focusing system made of conventional explosive developed by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the Design Bureau was transferred to the structure of the First Main Directorate under the Council of Ministers of the USSR, now VNIIEF), chief designer - Yu. B. Khariton. Charge developers - K. I. Shchelkin, E. I. Zababakhin and V. F. Grechishnikov. Initially had the index RDS-2M / product 501-2M.

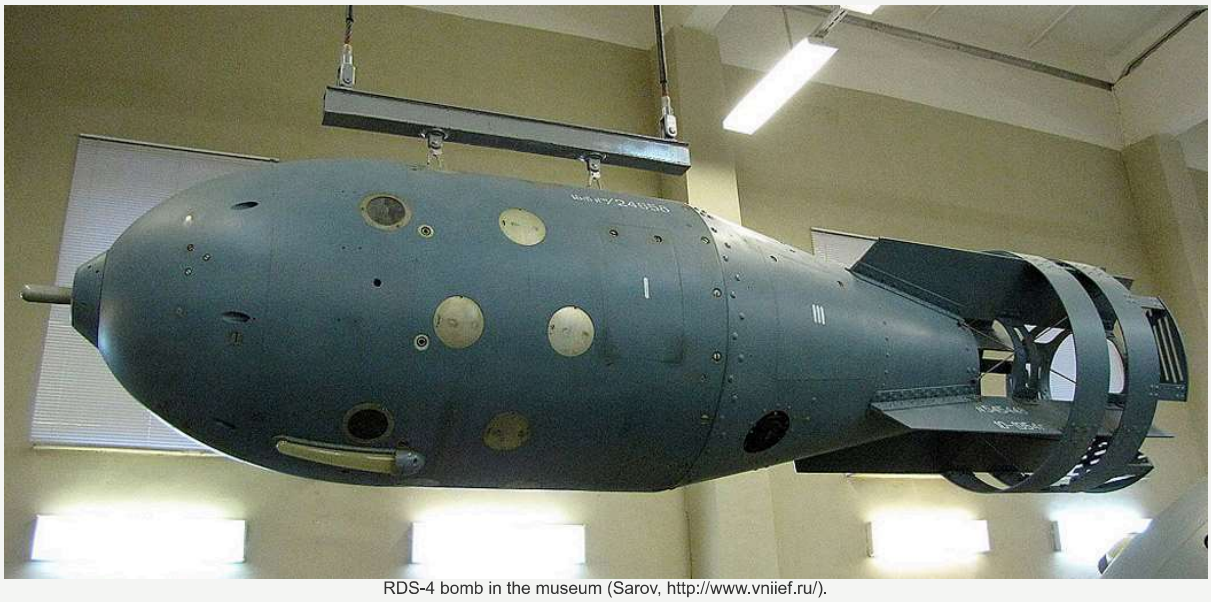
By the Decree of the Council of Ministers of the USSR No. 1989-773 of 10.06.1948, KB-11 was tasked with carrying out theoretical and computational studies on the possibility of creating RDS-3, RDS-4, RDS-5 charges and the RDS-6 hydrogen charge by 1 April 1949. The development was started by the Decree of the Council of Ministers of the USSR No. 3336-1402ssop of 29.07.1950. At the same time, the RDS-4M charge variant is also mentioned in the KB-11 work plan in archival documents.

A letter from V.A. Malyshev, B.L. Vannikov and A.P. Zavenyagin to Malenkov dated July 4, 1953 (top secret special folder) reported on the report to the Presidium of the Central Committee of the CPSU dated June 30, 1953 on the work to create the RDS-4 implosion-type bomb with the working substance plutonium + uranium-235, with a total mass of 1200 kg, a diameter of 820 mm with an expected yield of 25-28 kt. It was reported that the RDS-4 product was being manufactured according to the same basic scheme as the RDS-3 product, but using uranium-235 of a different concentration, as well as with a reduction in the dimensions of the product. On July 3, 1953, a train with RDS-4 samples was sent to the testing ground for testing from an Il-28 aircraft (source). The created RDS-4 charge is planned to be used for equipping warheads of a long-range missile and an aircraft-missile. Tests of the RDS-4 bomb were previously planned to be conducted in 1952, but in the end the tests were postponed to 1953 - the design of the RDS-4 charge was redesigned (change in the concentration of uranium-235), which allowed raising the expected power of the bomb from 17 kt to 25 kt.

The bomb was first successfully tested at the Semipalatinsk test site by dropping it from an Il-28 carrier aircraft on August 23, 1953. Dropped from an altitude of 11,000 m, the bomb exploded at an altitude of 600 m. The power of the explosion was 28 kt.

By the Resolution of the Council of Ministers of the USSR No. 3044-1304ss of 31.12.1953, the Stalin Prize for the creation of the RDS-6s, RDS-4 and RDS-5 products was awarded to Kurchatov I.V., Khariton Yu.B., Shchelkin K.I., Dukhov N.L., Zababakhin E.I., Zeldovich Ya.B. and others.

In sources, there is an identification of RDS-4 as "product 244N", which is an erroneous identification.



RDS-4 bomb in the museum (Sarov, http://www.vniief.ru/).

Author: DIMMI Created: 27.10.2019 02:23:37 Comments: 5 READ THE FULL ARTICLE

RDS-3 / product 501-M

DATA AS OF 2025 (standard replenishment)
RDS-3 / product 501-M
★★★

Atomic bomb. An implosion-type charge with a focusing system made of a new type of conventional explosive was created by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the Design Bureau was transferred to the structure of the First Main Directorate under the USSR Council of Ministers). By Resolution of the USSR Council of Ministers No. 1989-773 of 10.06.1948, Design Bureau No. 11 was tasked with completing, by April 1, 1949, computational and theoretical studies on the possibility of creating RDS-3, RDS-4, RDS-5 charges and the RDS-6 hydrogen charge. After testing the RDS-1 atomic bomb, Yu. B. Khariton continued work on improving the RDS-1 design , which resulted in the RDS-2 and RDS-3 projects. Initially, the project was called "RDS-5", but in 1951 it received the traditional name RDS-3. The name RDS-5 was later given to bombs with implosion-type charges with a small proportion of plutonium-239 in the mass of fissile materials.

Tests . On August 24, 1951, two bombs, product 501-M (No. 30171 and No. 30176, *source - Report*), arrived at site N of the Semipalatinsk test site. Bomb #30171 with RDS-2 charge was tested on the ground on September 24, 1951. Bomb #30176 with RDS-3 charge was tested by dropping an atomic bomb from a Tu-4A carrier aircraft on October 18, 1951 (crew commander K.I. Urzhumtsev, navigator B.D. Davydov) on the experimental field of the Semipalatinsk test site. The explosion occurred at an altitude of 580 m. During the tests, the correctness of the decisions made by Soviet intelligence and the scientists who developed the charge was confirmed.

On December 29, 1951, the Council of Ministers of the USSR adopted two top secret resolutions - No. 5384-2344ss/op "On ensuring the production of product 501-M" and No. 5383-2343ss/op on the expansion of Plant No. 551 (Avangard Electro-Mechanical Plant) - one of the reasons was to ensure the

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production of product 501-M. The decrees stipulated measures to ensure the production plan for RDS-2 and RDS-3 products and the conversion of RDS-1 products in 1952. Preparations for production at Plant No. 551 began in October 1951. "Accept the draft Resolution of the Council of Ministers of the USSR, submitted by the First Main Directorate under the Council of Ministers of the USSR and KB-11 and reviewed by the commission consisting of Comrades Klochkov, Zavenyagin and Borisov, "On measures to ensure the production plan for RDS-2 and RDS-3 products and the conversion of RDS-1 products in 1952." Plant No. 551 was to produce the first three serial RDS-3 bombs in March 1952. The increased production capacity of Plant No. 551 made it possible to manufacture 40 atomic bombs in 1952, including 24 RDS-2 type atomic bombs. and 16 RDS-3 type atomic bombs. In total, as of January 1, 1953, 75 atomic bombs (59 RDS-2 units and 16 RDS-3 units) had been manufactured and stored in KB-11 storage facilities by the experimental and serial production facilities of KB-11.

In the first quarter of 1953, a separate plant No. 418 was to start production of 501-M products (Resolution of the Council of Ministers of the USSR No. 3506-1628ss/op of 15.09.1951, Sverdlovsk-45, now Lesnoy) with a capacity of 60 units per year. Production of RDS-3I bombs continued until 1958 at least.

Atomic bomb RDS-3 / product 501-M (https://museum12gu.mil.ru/)

Author: DIMMI Created: 11.04.2013 23:36:05 Comments: 3 READ THE FULL ARTICLE

RDS-2 / product 501-M

DATA AS OF 2019 (in progress)
RDS-2 / product 501-M
★★★

Atomic charge for the "501-M" bomb. The implosion-type charge with a new focusing system made of conventional explosive was created by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the design bureau was transferred to the structure of the First Main Directorate under the USSR Council of Ministers). In some sources, the original name of the charge is "RDS-1M". By Resolution of the Council of Ministers of the USSR No. 1989-773 dated June 10, 1948, Design Bureau No. 11 was tasked with carrying out, by April 1, 1949, computational and theoretical studies on the possibility of creating RDS-3, RDS-4, RDS-5 charges and the RDS-6 hydrogen charge. The development under the name "RDS-4" (the fourth version of the first generation atomic bomb, the first such name) was started in 1948. After testing the RDS-1 atomic bomb, Yu.B.Khariton continued work on improving the RDS-1 design

. Tests. On August 24, 1951, two bombs, product 501-M (No. 30171 and No. 30176, *source - Report*), arrived at site N of the Semipalatinsk test site. The ground test explosion of the 501-M bomb was carried out at the Semipalatinsk test site on September 24, 1951. During the tests, the correctness of the solution obtained by Soviet intelligence and the scientists developing the charge was confirmed.

Since November 1951, the bomb was renamed RDS-2 and, probably, its serial production began. On December 29, 1951, the Council of Ministers of the USSR adopted two top secret resolutions - No. 5384-2344ss/op "On ensuring the production of 501-M products" and No. 5383-2343ss/op on the expansion of Plant No. 551 - one of the reasons was to ensure the production of 501-M products. The resolutions stipulated measures to ensure the production plan for RDS-2 and RDS-3 products and the reworking of RDS-1 products in 1952. "Accept the draft Resolution of the Council of Ministers of the USSR "On measures to ensure the plan for the production of RDS-2 and RDS-3 products and the reworking of RDS-1 products" submitted by the First Main Directorate under the Council of Ministers of the USSR and KB-11 and reviewed by the commission consisting of Comrades Klochkov, Zavenyagin and Borisov. The increased production capacity of Plant No. 551 made it possible to manufacture 40 atomic bombs in 1952, including 24 RDS-2 type atomic bombs and 16 RDS-3 type atomic bombs. In total, as of January 1, 1953, 75 atomic bombs (59 RDS-2 units and 16 RDS-3 units) were manufactured and stored in KB-11 storage facilities by the experimental and serial production facilities.

In the first quarter of 1953, 501-M products were to be manufactured start operating a separate plant No. 418 (Resolution of the USSR Council of Ministers No. 3506-1628ss/op of 15.09.1951, Sverdlovsk-45, now the city of Lesnoy) with a capacity of 60 units per year.

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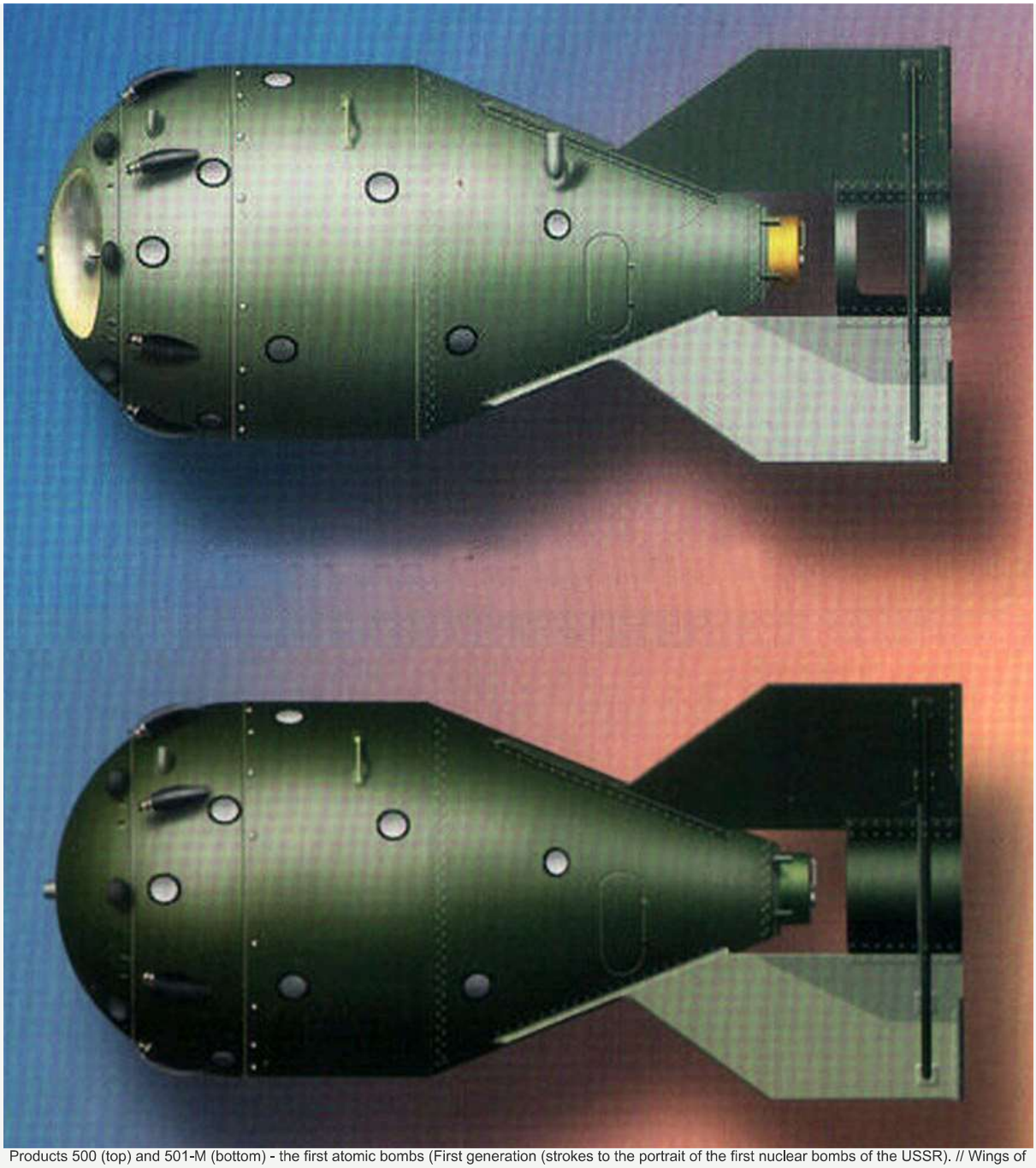


Products 500 (top) and 501-M (bottom) - the first atomic bombs (First generation (strokes to the portrait of the first nuclear bombs of the USSR). // Wings of the Motherland, No. 9 / 2008)

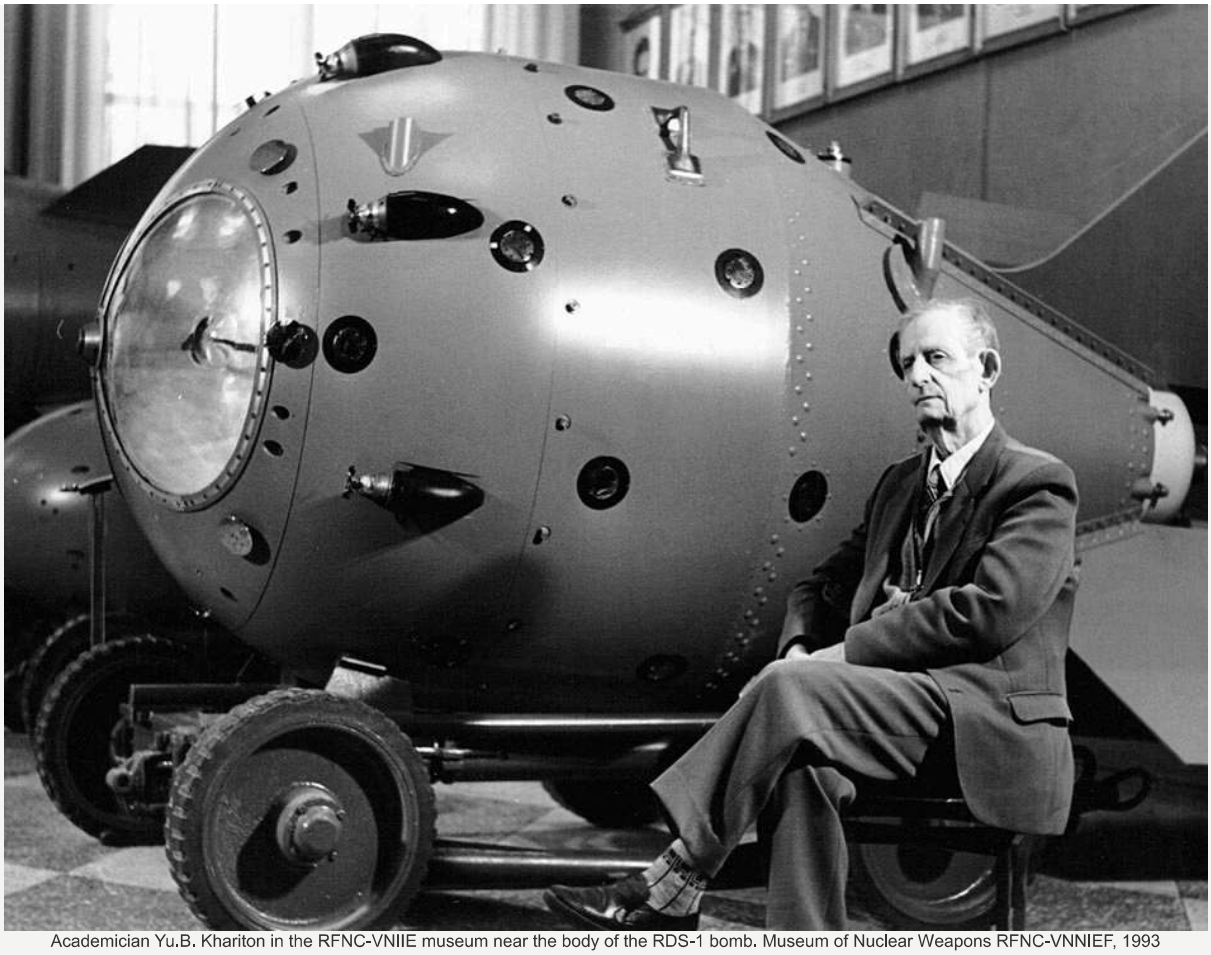
Author: DIMMI Created: 11.04.2013 23:32:50 Comments: 1 READ THE FULL ARTICLE

RDS-1 / product 501

DATA AS OF 2025 (standard replenishment)
RDS-1 / S-1 / product 501
★★★★

The first domestic atomic bomb. The RDS-1 atomic bomb was developed by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the Design Bureau was transferred to the structure of the First Main Directorate under the USSR Council of Ministers) in accordance with the scientific and technical requirements of the scientific director of work on the creation of atomic weapons, Academician Kurchatov (Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences, created in February 1943) and the chief designer of Design Bureau No. 11 Yu.B.Khariton. On August 20, 1945, a special committee for the creation of domestic atomic weapons was created under the State Defense Committee of the USSR, the chairman of the committee was L.P.Beria. On August 30, 1945, for the practical implementation of the task of creating atomic weapons, the First Main Directorate was created under the Council of People's Commissars of the USSR, headed by B. L. Vannikov. On December 10, 1945, the first meeting of the scientific and technical council of the PGU was held. On April 9, 1946, by Resolution of the Council of Ministers of the USSR No. 805-327ss / op "Questions of Laboratory No. 2", KB-11 was created, chief designer - Yu. B. Khariton, head of the design bureau - P. M. Zernov.

When creating the first domestic atomic bomb, intelligence data was widely used - in particular, a detailed diagram of the American atomic bomb, which was handed over to Soviet intelligence by Klaus Fuchs. The value of the information received from Fuchs was confirmed by Yu. B. Khariton for the first time at a conference of the first nuclear weapons developers, which took place at VNIIEF in April 1992, and then in an article in the Izvestia newspaper on December 8, 1992 (source). The development of the bomb systems was carried out by domestic scientists, but the receipt of intelligence data on similar work in the USA allowed for a significant acceleration of the development, although it led to the continuity of technical solutions.

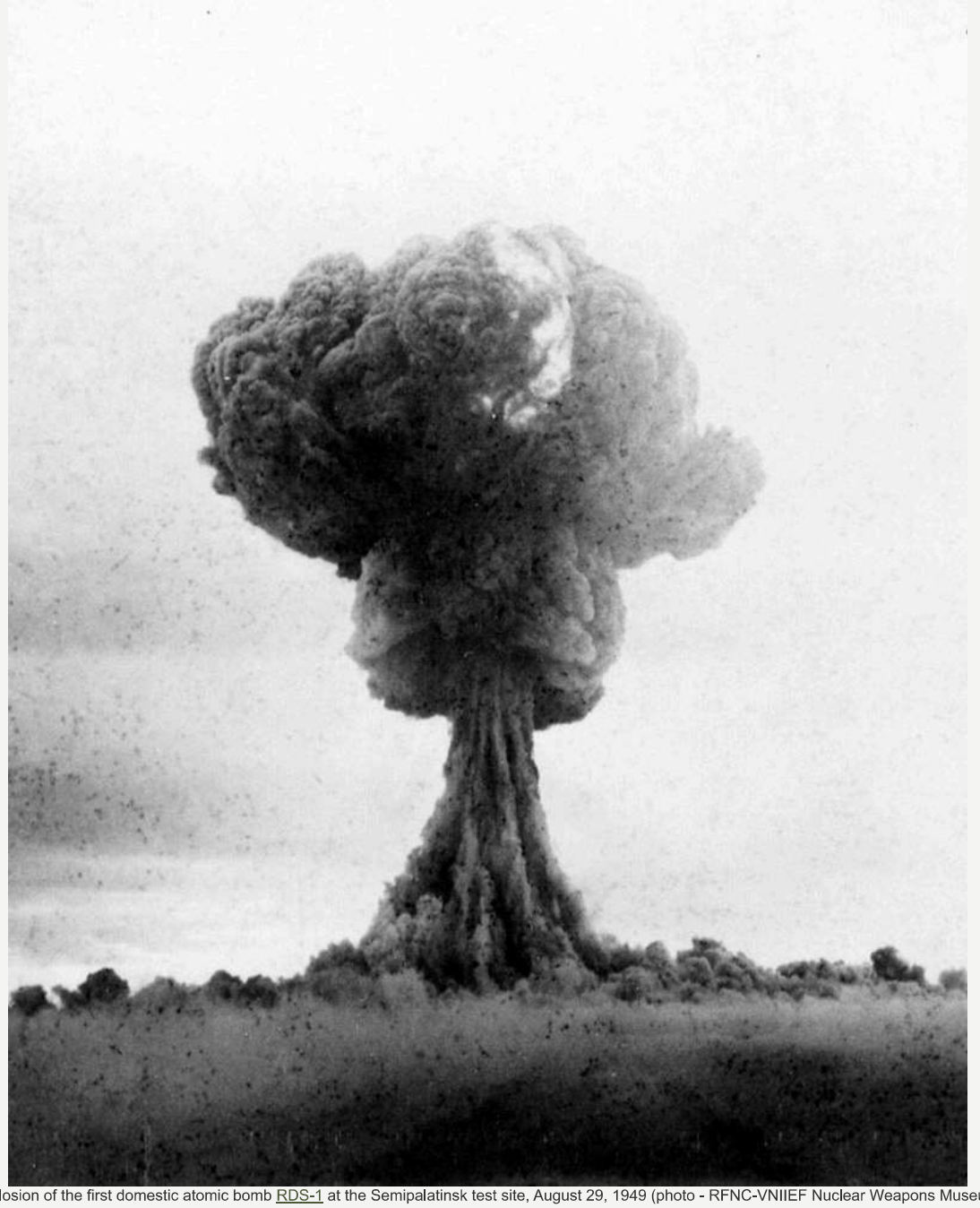


Academician Yu.B. Khariton in the RFNC-VNIIE museum near the body of the RDS-1 bomb. Museum of Nuclear Weapons RFNC-VNNIEF, 1993 (http://rusarchives.ru/school).

Author: DIMMI Created: 16.03.2013 16:58:37 Comments: 35 READ THE FULL ARTICLE

Chronology of nuclear tests in the USSR

DATA AS OF 2025 (standard update)
Chronology of nuclear tests in the USSR (1945-1990)



Explosion of the first domestic atomic bomb RDS-1 at the Semipalatinsk test site, August 29, 1949 (photo - RFNC-VNIIEF Nuclear Weapons Museum, http://rusarchives.ru).

The table provides summary data on nuclear tests in the USSR. The data is being updated - see the date of the last file change above.

- 1958 March 31 - September 30 - the USSR declares a unilateral moratorium.

- 1958 October 30 - 1961 September 1 - bilateral (USSR and USA) moratorium on nuclear tests.

- 1961 August 1 - the USSR declares a unilateral withdrawal from the bilateral moratorium on nuclear tests.

- 1985 August 6 - 1987 February 25 - unilateral moratorium of the USSR on nuclear tests.

- 1991 October 26 - Russia declares a moratorium on nuclear tests.

Author: DIMMI Created: 24.02.2014 17:34:53 Comments: 13 READ THE FULL ARTICLE

Tu-160 - registry, chronology, sources

DATA FOR 2025 (standard update)
Tu-160 BLACKJACK - registry, chronology, sources:
★★★★

Tu-160M "Valentina Tereshkova" No. 901, Ramenskoye, October 2023 (photo by Vyacheslav Grushnikov, https://russianplanes.net/)

Status : USSR and Russia:

The Tu-160 registry is unofficial, according to media and other public sources (c) 2009-2024, http://militaryrussia.ru , a link is required when using:

Author: DIMMI Created: 25.09.2009 22:26:07 Comments: 3 READ THE FULL ARTICLE

Photos of Tu-160 BLACKJACK

DATA FOR 2025 (standard update)
Tu-160 BLACKJACK - status, sources:
★★★★

701	702 Tu-160 "Vasily Reshetnikov"	703	704 Tu-160 "Ivan Yarygin"	705
801	802 Tu-160 "Alexander Molodchiy"	803	804 prototype Tu-160M2 "Pyotr Deinekin"	805 Tu-160M2

Serial number 702 - Tu-160 "Vasily Reshetnikov"

Tu-160 strategic bombers of the Russian Aerospace Forces, named "Ivan Yarygin" (serial number 704) and "Vasily Reshetnikov" (serial number 702), upgraded at the Kazan Aviation Plant named after S.P. Gorbunov (a branch of PJSC Tupolev). Kazan, 23.04.2020 (photo - UAC)

Author: DIMMI Created: 04.01.2021 23:31:12 Comments: 12 READ THE FULL ARTICLE

Tu-160 - BLACKJACK

DATA FOR 2025 (standard update)
Tu-160 (product 70) - BLACKJACK / RAM-P
Tu-160S (product 70-03) - BLACKJACK
Tu-160M (product 70M) - BLACKJACK
Tu-160M2 (product 70M2) - BLACKJACK-M
★★★★

A heavy multi-mode strategic bomber with variable-sweep wings. Designed by the OKB MMZ "Opyt" of A.N. Tupolev, chief designer from 1975 to 2010 Valentin Ivanovich Bliznyuk. The aircraft is generally similar to the project of the multi-mode bomber M-18 of the OKB V.M. Myasishchev. The original version of the Tu-160 had an ogive wing and was designed on the basis of the Tu-144 (1969-1972). Preliminary R&D on the Tu-160 with a variable-geometry wing began in 1972. Design of the final version - product 70, Tu-160M project, aircraft "K" began in 1975 in accordance with the decree of the USSR Council of Ministers of June 26, 1974 and the decree of the USSR Council of Ministers N 1040-348 of December 19, 1975. The preliminary design and creation of a full-size model of the Tu-160 - 1976-1977.

The Tu-160 mockup was approved at the end of 1977. Production of the first three prototypes (flight test aircraft 70-01, static test aircraft 70-02, pre-production aircraft 70-03) began in 1977 at MMZ Opyt (fuselage production by Kazan Aircraft Plant, wing and stabilizer by Novosibirsk Aircraft Plant named after V. Chkalov, cargo compartment doors by Voronezh Aircraft Plant, chassis by Gorky Aircraft Plant). At the same time, preparations for serial production began at Kazan Aircraft Plant No. 22 (initially, it was planned to expand production to the Ulyanovsk Aircraft Plant). In May 1980, prototype 70-01 was built and transported to the Flight Research Institute airfield in Zhukovsky. Final assembly of the aircraft was completed in January 1981 and ground testing of the aircraft began. Aircraft 70-01 was rolled out onto the airfield on August 18, 1981. Systems and equipment checks began on October 22, 1981, and on November 14, 1981, under the control of B.I. Veremey's crew, the aircraft made its first run. The first photo in the West was taken from a civilian aircraft taking off from Bykovo Airport on November 25, 1981 - the aircraft was named RAM-P ("Ramenskoye", unidentified model of equipment No. 16).

Tu-160 - BLACKJACK, refueling boom released, 21.03.2008 (photo by Sergey Brovko, http://picasaweb.google.com/brovko.sergey).

Author: DIMMI Created: 04.09.2009 00:29:27 Comments: 193 READ THE FULL ARTICLE

Product 810

DATA FOR 2025 (in progress)
"Product 810"
★★

Long-range air-to-air missile. Developed by the Vympel State Design Bureau using developments on the K-37 missiles . As of 2008, work was underway on the missile's preliminary design. Probably, in 2010, the preliminary design of the missile itself and some of its elements (for example, the Orlan product - see below) was defended. Completion of the development is planned for 2013 (*source - Based on the report*). According to articles on the work of the Chkalov State Flight Test Center in Akhtubinsk, in 2014-2015, it was planned to test the product 810 missile at the State Flight Test Center.

In 2019, during a visit to the Vympel Design Bureau by the Moscow leadership, a sample of the product 810 missile body was shown.

Model of the rocket "product 810" (https://otvaga2004.mybb.ru/, 2024).

Author: DIMMI Created: 15.07.2012 06:06:05 Comments: 1 READ THE FULL ARTICLE

RDS-37

DATA AS OF 2025 (standard replenishment)
RDS-37
★★★

Thermonuclear bomb with a two-stage charge with nuclear compression. The bomb was developed by KB-11, the chief designer and scientific director of the work was Yu.B.Khariton, the project manager was A.D.Sakharov.

In early 1954, at a meeting at the Ministry of Medium Machine Building, 8 design options for the "SD" - a high-power bomb, higher than the previously tested RDS-6s (SD - "modified puff pastry") were considered. All the considered charge options did not produce a power of more than 1.5 Mt, which was considered insufficient. At the same time, the cost of the SD product was estimated at 20 times more than the cost of the RDS-2. Also in early 1954, a new principle of nuclear compression was proposed by Sakharov and Zeldovich based on the ideas of V.A.Davidenko. Unofficially, the principle of nuclear compression was called "saccharification" - the primary charge was located next to the secondary and both charges were surrounded by a heavy body reflecting X-rays. In this way, a circular effect of X-rays on the secondary unit was achieved. It should be noted that the principle of a double charge for a superbomb was also described in the materials of Klaus Fuchs obtained by Soviet intelligence (1945-1948). Klaus Fuchs is also probably the author of the idea of "radiation myplosion" (source).

On December 24, 1954, the scientific and technical council of KB-11 was held under the chairmanship of I.V. Kurchatov. The Minister of Medium Machine Building V.A. Malyshev, the management of KB-11, scientists and designers-developers of atomic charges took part in the work of the council. The problem of creating a high-power hydrogen bomb based on a new principle was discussed at the meeting. Yu. B. Khariton proposed to conduct a model experiment of a full-scale design of a new bomb in 1955. As a result of the discussion, the council made an agreement:
- the management of KB-11 should submit a work plan on the problem of creating a new bomb with an explanatory note to the Ministry of Medium Machine Building.
- to allow the development of a bomb-device and its testing at the No. 2 testing ground in 1955 before the work plan on this problem is approved (*source - Volume 1*)

. The development of a new type of thermonuclear charge was carried out both for equipping an aviation bomb and for the R-7 intercontinental missile - in the case of the missile, the power of the charge should have leveled out the low accuracy of the future missile.

During the first half of 1955, a prototype of the bomb-device was developed to test the new principle. The technical assignment for the manufacture of a hydrogen bomb of a new design was issued on February 1, 1955. A.P. Zavenyagin, and the heads of the Main Directorate P.M. Zernov and N.I. Pavlov arrived at KB-11 to check the progress of work on the plan for developing a new physical charge scheme. At a meeting held on May 27, 1955, the status of work on developing the RDS-37 bomb-device was considered. Ya.B. Zeldovich made a report on this issue. He presented material on the thermonuclear reaction occurring in the RDS-37 device. Zavenyagin asked: "Are there any more doubts?" - "If we talk about the power with an accuracy of only ±40%, then there are no doubts," Zeldovich answered. Based on the results of the meeting, Zernov, Pavlov, Khariton, Negin, Dukhov, and Bessarabenko prepared a decision that was approved by Zavenyagin on May 31, 1955, and in which it was written: "Approve the scheme of the experimental device RDS-37 presented by KB-11" (*source - Volume 1*).

Experimental work (gas-dynamic experiments) on the development of the bomb elements and the corresponding design changes were carried out until the end of September 1955 (*source - Volume 1*).

Bomb with RDS-37 charge, 11/22/1955 (source).

Author: DIMMI Created: 16.03.2014 01:58:39 Comments: 8 READ THE FULL ARTICLE

RDS-27 / product 27N

DATA AS OF 2024 (standard replenishment)
RDS-27 / product 27N
★★★

Medium-power hydrogen bomb with a "puff pastry" type charge, a development of the RDS-6s . The charge was developed by KB-11 in parallel with the work on a new type of charge - RDS-37 - as a backup along with the RDS-7 charge. The development was carried out under the supervision of A.D. Sakharov, Yu.A. Romanov (with the participation of M.P. Shumaev) and under the general supervision of Yu.B. Khariton (source). At the meeting of the Scientific and Technical Council of KB-11 on December 24-25, 1954, the need was noted to complete the development of a product in the dimensions of the RDS-6s in 1955 using uranium-235. In January 1955, the development of the RDS-27 bestirium bomb was included in the KB-11 work plan for 1955. In February 1955, a list of potential carriers for the RDS-27 charge was determined, and a bomb test from a carrier aircraft was planned for November-December 1955. In September 1955, a final decision was made to use double initiation in the charge - a neutron fuse (NF) and a pulsed neutron source (PNS).

The bomb was tested at the Semipalatinsk test site (P-3 experimental field) on November 6, 1955. The bomb was dropped from an aircraft and the explosion occurred at an altitude of 1000 m. The explosion power was 250 kt of TNT equivalent. Apparently, the test was conducted without a PNS - only with a neutron fuse.

After testing the bomb with the RDS-27 charge, a decision was made in 1956 to begin its serial production - on January 5, 1956, Resolution No. 46-31ss of the USSR Council of Ministers was adopted on the results of testing the RDS-27 and RDS-37 products , serial production of the RDS-27 product, development and manufacture of products based on the principle of atomic compression (source). Serial production of the 27N bomb with the RDS-27 charge was started (*source - Atomic era*).

The 27N aerial bomb with the RDS-27 charge became the first serial thermonuclear aerial bomb.

Bomb 27N with RDS-27 charge before testing on November 6, 1955 (newsreel frame).

Author: DIMMI Created: 16.03.2014 01:48:26 Comments: 1 READ THE FULL ARTICLE

RDS-6s / product 501-6

DATA AS OF 2025 (standard replenishment)
RDS-6
RDS-6t
RDS-6s / product 501-6
★★★★

The world's first combat thermonuclear charge / bomb with a thermonuclear charge. Developed by KB-11 (now VNIIEF, Sarov), heads of theoretical development sectors - Ya.B.Zeldovich (RDS-6t) and A.D.Sakharov (RDS-6s), chief designer and scientific director of KB-11 - Yu.B.Khariton.

In 1945, I.V.Kurchatov received information through intelligence channels about research on the thermonuclear problem being conducted in the USA, which was started in 1942 on the initiative of Edward Teller. His ideas were discussed with the leading participants of the Manhattan Project and came together to form a coherent concept by the end of 1945. According to this concept, the hydrogen bomb was called the "Classical Super" (or simply Super). On the instructions of I. V. Kurchatov, in December 1945, a group of Soviet physicists led by Yu. B. Khariton performed a preliminary analysis of the possibilities of creating a thermonuclear weapon. On December 17, 1945, Ya. B. Zeldovich reported on the results of this work to the technical council under the Special Committee. Then a group from the Institute of Chemical Physics of the USSR Academy of Sciences (Ya. B. Zeldovich, A. S. Kompaneets and S. P. Dyakov) began studying one of the possible options for the development of a thermonuclear reaction. This option (RDS-6t, "pipe") was chosen based on intelligence data. The incoming information about the "superbomb" could not help but cause serious concern among the USSR leadership (*source: Veselovsky*).

Since 1946, Ya.B. Zeldovich's group (A.S. Kompaneets and S.P. Dyakov) from the Institute of Chemical Physics had been conducting calculations of the thermonuclear detonation of deuterium. On April 23, 1948, L.P. Beria instructed B.L. Vannikov, I.V. Kurchatov and Yu.B. Khariton to analyze the intelligence materials on the Fuchs-von Neumann system, transmitted by Klaus Fuchs. The conclusion on the materials was presented on May 5, 1948. The Resolution of the Council of Ministers of the USSR dated June 10, 1948 assigned the creation of the RDS-2 , RDS-3 , RDS-4, RDS-5 atomic bombs and the RDS-6 hydrogen bomb (*source - Andryushin*). On February 8, 1948, the Resolution of the Council of Ministers of the USSR "On the work of KB-11" was adopted, which provided for the assignment of Ya. B. Zeldovich to the "object". The appearance of information from K. Fuchs forced these works to be accelerated (*source - Veselovsky*).

Based on the examination of B. L. Vannikov, I. V. Kurchatov and Yu. B. Khariton, I. V. Stalin approved on June 10, 1948 measures designed to provide a conclusion within a year on the feasibility of creating a hydrogen bomb. At the Plekhanov Physical Institute. P.N. Lebedev of the USSR Academy of Sciences created a group of theorists under the leadership of I.E. Tamm, which included A.D. Sakharov, V.L. Ginzburg, Yu.A. Romanov, S.Z. Belenkiy and E.S. Fradkin (*history - Veselovsky*). In the autumn of 1948, A.D. Sakharov, independently of Edward Teller, came up with the idea of a heterogeneous scheme with alternating layers of deuterium and U-238 ("layer cake"). The principle of ionization compression of thermonuclear fuel underlying it is called "saccharification" ("first idea"). At the end of 1948, V.L. Ginzburg proposed using lithium 6 deuteride as thermonuclear fuel ("second idea"). On the instructions of B.L. Vannikov, on May 8, 1949, Yu.B. Khariton prepared a conclusion, noting that the main idea of A.D. Sakharov's proposal was "extremely witty and physically clear" and supported the work on the "layer cake" (*source - Andryushin I.A., Ilkaev R.I....*).

On February 26, 1950, the USSR Council of Ministers issued Resolution No. 827-303ss/op "On Work on the Creation of RDS-6" (*source - Goncharov G.A....*). Which obliged the First Main Directorate (PGU), Laboratory No. 2 of the USSR Academy of Sciences and KB-11 to carry out theoretical, experimental and design work on the creation of the RDS-6s ("Sloika") and RDS-6t ("Pipe") products. First of all, the RDS-6s product with a TNT equivalent of 1 million tons and a mass of up to 5 tons was to be created. The resolution provided for the use of tritium not only in the RDS-6t design, but also in the RDS-6s design. The deadline for manufacturing the first copy of the RDS-6s product was set at 1954. Yu. B. Khariton was appointed scientific director of the work on creating the RDS-6s and RDS-6t products, with I. E. Tamm (RDS-6s) and Ya. B. Zeldovich (RDS-6t) as his deputies. In the part concerning the RDS-6s, the resolution required manufacturing a model of the RDS-6s product with a small amount of tritium by May 1, 1952, and conducting a field test of this model in June 1952 to verify and refine the theoretical and experimental principles of the RDS-6s. Proposals for the design of a full-scale RDS-6s product were to be submitted by October 1952. The decree ordered the creation of a theoretical calculation group in KB-11 for work on RDS-6s under the leadership of I.E. Tamm (*source - Andryushin I.A., Ilkaev R.I....*).

On the same day, the USSR Council of Ministers Resolution No. 828-304 "On the organization of tritium production" was issued. Soon, the USSR Council of Ministers Resolutions on the organization of lithium-6 deuteride production and the construction of a specialized reactor for tritium production were adopted (

source - Andryushin I.A., Ilkaev R.I....).

Bomb 501-6 with RDS-6s charge in the RFNC-VNIIEF Museum, Sarov (http://wsyachina.narod.ru/).

Author: DIMMI Created: 12.03.2014 23:57:52 Comments: 11 READ THE FULL ARTICLE

RN202 / product 202

DATA AS OF 2024 (standard replenishment)
RN202 / 02N / product 202 / product 02
★★★★

Thermonuclear bomb with a two-stage charge with nuclear compression like the RDS-37 of ultra-high power / "high-power bomb". After the successful test of the RDS-37 thermonuclear charge , several proposals were made to create high-power charges. Work on them was accelerated, among other things, by data on tests of 10-megaton thermonuclear charges in the USA. In 1955, by decision of the Government, a second nuclear center was created - NII-1011 (now RFNC-VNIITF) in Chelyabinsk-70 (now Snezhinsk), where a third of the KB-11 employees were transferred. The subject of the work was identical. The new nuclear center proposed a project to develop a superbomb with a capacity of 30 Mt (the first thermonuclear device "Michael" of the USA, tested in 1952 at Bikini Atoll, had such a capacity). On December 16, 1955, in a report to the Minister of Medium Machine Building by Vasiliev, Shchelkin, Zababakhin and Grechishnikov on the development and testing of a high-power device, it was proposed to test the device developed by NII-1011 in the summer of 1956 using the M-4 carrier aircraft. Several versions of the device were proposed - in the form of a bomb, as well as in the form of an M-4 aircraft equipped with the device, which the crew would abandon before the explosion. Since the autopilot systems did not provide the necessary accuracy, and there was no guarantee of a successful landing of the crew in the area of the Novaya Zemlya test site, the option of an aircraft equipped with the device was rejected. It was assumed that the weight of the experimental product would be 24-26 tons with a diameter of 2.1 m. The power of the product was estimated at 15-25 Mt.

On December 28, 1955, a note from Zavenyagin, Zhukov, Kurchatov and Zernov was sent to the Presidium of the Central Committee of the CPSU, proposing the creation of a high-power charge using the principle of atomic compression (RDS-37) weighing 20-26 tons and with a capacity of 20-30 Mt. It was proposed to create the charge by the 3rd quarter of 1956 and test it by dropping it from an M-4 aircraft at the Novaya Zemlya test site. It was proposed to use lithium, produced by industry for other bombs during the 1st-3rd quarter of 1956, for the production of the charge, with subsequent compensation in the following 3 quarters. It was proposed to create a special parachute for the bomb.

By the Resolution of the Council of Ministers of the USSR No. 46-31ss "On the results of testing the RDS-27 and RDS-37 products, serial production of the RDS-27 product, development and production of the product based on the principle of atomic compression" dated January 5, 1956, preparations were made for the production of high-power products in 1956-1960, as well as preparations for testing a product with a power of 20-30 Mt at the "700" facility (a testing ground on Novaya Zemlya) by the 3rd quarter of 1956. The corresponding M-4 carrier aircraft for the mass of the payload had to be ready by this date. Thus, the development of the future product 202 was assigned at NII-1011.

RDS-202 / RN202 bomb developed by NII-1011 (https://ru.wikipedia.org/)

Author: DIMMI Created: 27.11.2024 14:27:03 Comments: 1 READ THE FULL ARTICLE

245N / product 45

DATA AS OF 2024 (standard replenishment)
Product 245N (bomb) / product 45 (charge)
★★

High-yield thermonuclear (hydrogen) aerial bomb developed by NII-1011 (later VNIIP, now RFNC-VNIITF, USSR Ministry of Medium Machine Building, Snezhinsk). Chief Designer - K.I.Shchelkin, Chief Designer of the charge - L.P.Feoktistov. Years of bomb development - 1956-1957. The bomb is one of the first munitions, the development of which was entrusted to NII-1011.

The munition became the first serial thermonuclear aerial bomb for long-range aviation aircraft, which entered service with the Air Force units. The charge is made according to the two-stage charge scheme RDS-37, but is 20% more economical than a similar charge KB-11.

The bomb was tested in 1957 - this was probably the first explosion-test of the charge developed by NII-1011, which was conducted at the Semipalatinsk test site on 10.04.1957 with a capacity of 680 kt. The second test was on 22.08.1957. In subsequent years, test explosions of other nuclear charges were carried out in the 245N bomb body.

Serial production of the 245N product began in 1957. The bomb was accepted into service in 1958. It was removed from service in 1972.

The first serial thermonuclear aerial bomb 245N in the VNIITF museum (https://kara-banoff.livejournal.com/)

Author: DIMMI Created: 06.12.2024 23:56:24 Comments: 1 READ THE FULL ARTICLE

RYu-1 / 5F-48 Scalp

DATA AS OF 2024 (standard replenishment)
RYu-1 / SK-1 / 5F-48 "Scalp" / product Yu-1
★★★

Anti-submarine nuclear bomb / aviation depth charge with a nuclear charge developed by NII-1011 (later - VNIIP, now - RFNC-VNIITF, USSR Ministry of Medium Machine Building, Snezhinsk), chief designer - A.D. Zakharchenkov. In 1959, the Resolution of the CPSU Central Committee and the USSR Council of Ministers was adopted on the development of an aviation thermonuclear depth charge of the megaton class to destroy submarines in submerged and surface positions, as well as enemy ships. The development of an anti-submarine complex with a carrier seaplane and an anti-submarine bomb was initiated in response to a similar aviation complex adopted in the late 1950s in the United States, as well as in connection with the deployment of a missile system by the United States with the George Washington-class SSBN. Initially, the development of a bomb with a charge designed by VNIIEF was assigned, but later the development of the charge was assigned to NII-1011.

For the first time in the practice of NII-1011, a draft design was developed and defended for the nuclear munition "Scalp". The NII-1011 Nuclear Warhead Testing and Operation Department (V.I. Prosvetova) was also the first to prepare a diagram of "the passage of nuclear warheads during operation in military units of the Ministry of Defense".

On August 17, 1961, the USSR Council of Ministers issued Resolution No. 758-324 "On conducting factory and qualification tests of prototypes of the Scalp product in 1962" . The main carrier of the Scalp bombs was the Be-12 amphibious aircraft. Tests of the aerodynamic bodies of bombs without a nuclear charge were conducted from September 1960 to October 1963 at land and sea testing grounds in Crimea. During the tests, 16 versions of the bombs were tested. The rescued versions of the products were raised from the bottom of the shallow-water sea testing ground with the involvement of a rescue vessel of the Black Sea Fleet. RTS-6 telemetry equipment and SK control systems were used, as well as equipment for recording the parameters of the product's movement on the underwater section of the trajectory. In 1964, joint tests of the Be-12SK "Chaika" carrier and "Skalp" bombs were conducted.

The bomb with the Be-12SK carrier was accepted into service in 1964. Serial production of the munition was carried out by PO "Start" (Zarechny, Penza Region) since 1965.

In 1965-1970, "Skalp" type munitions were received into service by three long-range anti-submarine aviation regiments and two anti-submarine squadrons of the USSR Navy. Later, to replace the "Skalp" bomb, a new aviation nuclear depth bomb RYu-2 / 8F-59 "Skat" was created and produced in 1969-1970, which was universal in terms of carriers.

Model of the nuclear anti-submarine bomb RYu-1/5F-48 "Scalp". The red and white stripes indicate that this is a training device (photo 2014, https://kara-banoff.livejournal.com)

Author: DIMMI Created: 01.03.2023 21:23:11 Comments: 1 READ THE FULL ARTICLE

407N

DATA AS OF 2024 (in progress)
407N
★★

Atomic bomb. The bomb was developed by KB-11 / VNIIEF. Testing of the munition in 1959 was first carried out in two stages. Acceptance of products for testing was carried out in KB-11 by representatives of the Air Force and the 12th GUMO of the USSR Ministry of Defense. Tests were carried out at the 71st Air Force testing ground in Bagerovo in Crimea. The tests were successful.

Serial production began at the Instrument-Making Plant in Trekhgorny in 1960. Assembly of 407N products was carried out in small quantities and unevenly. Production ceased by the end of 1961 (source).

Full-scale tests with a bomb explosion at the testing ground were carried out in 1961.

Ballistic casing of the RDS-4 "Tatiana" bomb, model 1953 (one of two surviving ballistic casings of the bomb) - 407N bombs were assembled in such a casing. Monument in the town of Bor near Nizhny Novgorod, 2016 (photo - Dmitry Kashkanov)

Author: DIMMI Created: 10.12.2024 23:20:39 Comments: 1 READ THE FULL ARTICLE

RN28

DATA AS OF 2024 (in progress)
RN28
★★

Tactical nuclear bomb with a charge developed by NII-1011 (later VNIIP, now RFNC-VNIITF, USSR Ministry of Medium Machine Building, Snezhinsk). Chief Designer - L.F. Klopov. The development of the munition was completed in 1969. Serial production began at the Instrument-Making Plant in Trekhgorny in 1969 (chief designer at the plant - P.N. Mesnyankin). The products were assembled using a flow-line method on a conveyor (source).

The bomb is intended for use on the external suspension of supersonic frontline aviation aircraft to destroy fortified areas, command posts, missile positions and other important targets with known coordinates. The bomb was probably developed as a response to the appearance of the B61 bomb in service with the US Air Force.

The bomb was removed from service with the USSR Air Force in 1990.

RN28 bomb at the exhibition "70 years of the nuclear industry" in Manezh in Moscow, 2015 (https://pfc-joker.livejournal.com/)

Author: DIMMI Created: 08.12.2024 18:35:47 Comments: 1 READ THE FULL ARTICLE

9U-64 / RN40

DATA AS OF 2024 (standard replenishment)
9U-64 / RN40
★★

Light tactical nuclear bomb with a charge of adjustable yield developed by VNIIP (now RFNC-VNIITF, USSR Ministry of Medium Machine Building, Snezhinsk). The bomb was accepted into service by 1983 according to Western data (probably in 1980-1982). Serial production was carried out at the Instrument-Making Plant in Trekhgorny.

Some sources indicate the index 8U-64 - taking into account the chronology of the creation of the products, this index may be erroneous.

Visually, the RN40 bomb is similar to the RN28 bomb. In the photo, the RN28 bomb is at the exhibition "70 years of the nuclear industry" in Manezh in Moscow, 2015 (https://pfc-joker.livejournal.com/)

Author: DIMMI Created: 08.12.2024 12:40:55 Comments: 1

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8U-69 / product 244N / RN24

DATA AS OF 2023 (standard replenishment)
8U-69 / product 244N
RN24
★★★★

Tactical atomic bomb with a charge developed by NII-1011 (later - VNIIP, now - RFNC-VNIITF, USSR Ministry of Medium Machine Building, Snezhinsk). Chief designers - K.I. Shchyolkin, A.D. Zakharchenkov. This is the first Soviet atomic bomb for use on the external suspension of supersonic frontline aviation aircraft. The bomb is designed to destroy fortified areas, command posts, missile positions and other important targets with known coordinates. The bomb and the charge for it were developed in 1957-1961.

Tests of product 244 were conducted in 1960-1961. In the scientific testing unit of the 71st Air Force testing ground (Bagerovo, Crimea), an optimal method for a possible nuclear strike from a fighter-bomber on a ground target was theoretically substantiated. This was a vertical maneuver of the aircraft (pitching at angles of about 45 degrees) with various options for the aircraft to leave after bombing. According to the developers' calculations, the aircraft had the ability, while at a distance of 5-6 km from the target, to carry out a sudden maneuver: 5-6 seconds after entering the pitching position, release an aerial bomb, and then in 9-10 seconds go to a safe distance, avoiding or minimizing the impact of damaging factors of a nuclear explosion on the aircraft. The development of this bombing method using imitation IAB-500 aerial bombs was carried out at the 71st Air Force testing ground (Bagerovo, Crimea) in 1961 under the supervision of the head of the Lipetsk combat training center department I.B. Kacharovsky. On August 27, 1962, Lieutenant Colonel A.I. Shein, for the first time in world practice, carried out a bombing of a 244N aerial bomb in combat equipment from a Su-7B aircraft using a vertical maneuver (pitching). The test was conducted at the Semipalatinsk test site (see the chronology of atomic tests).

The 8U-69 bomb / product 244N was accepted into service in 1963 in three modifications (244N-1, 244N-2, 244N-3) with charges of different power.

The development of a more modern version of the RN24 was started at NII-1011 (VNIITF, chief designer - A.D. Zakharchenkov, source) in 1962. The new bomb was made in the dimensions of the 244N bomb, but with a more powerful charge with slightly larger dimensions (than in the 244N) and with a more compact automatic unit of the munition - with this in mind, the design of the munition was reconfigured. The RN24 bomb was accepted into service in 1971.

Serial production of the 8U-69 bomb / product 244N was started at the end of 1961 at the Instrument-Making Plant in Trekhgorny. The last two modifications of the bomb (out of a total of five) were also produced by the Penza Instrument-Making Plant (PPZ, Zarechny, now the Start Scientific and Production Center) until the mid-1970s. The first serial special product was released by the Penza Instrument Plant in December 1963 - it was product 244N (not confirmed, source).

In 1984 the bomb was removed from service.

Atomic bomb "article 244" (source)

Author: DIMMI Created: 03.09.2022 21:25:49 Comments: 6

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FAB-5000 M-54

DATA AS OF 2024 (in progress)
FAB-5000 M-54
★★★

High-explosive aerial bomb of 5000 kg caliber, form factor M-54. The bomb was developed by GSKB-47 (now NPO Bazalt). The munition is designed to destroy industrial, urban, port facilities and other protected targets. The bomb was developed in the 1950s to replace the FAB-5000NG bomb of 1943 model, of which a total of 98 units were produced.

The bombs were produced by arsenal enterprises of the USSR Ministry of Defense. Form factor of 1954 model (M-54).

On August 12, 2024, as part of the Army-2024 forum, the head of the KTRV Boris Obnosov announced that the FAB-5000 bombs will not be equipped with UMPK planning and correction modules.

Bomb FAB-5000 M-54

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590 Rambler's Top100 AviaTOP